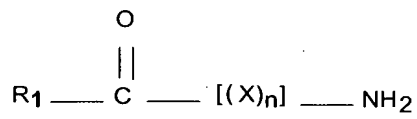
What is claimed is:

1. An antimicrobial peptide represented by Formula I:

Formula I



wherein:

X is any natural or non-natural, modified or unmodified amino acid except glutamate or aspartate;

n = 1 to 5;

wherein:

(a) when n=1, then

said peptide comprises a cationic amino acid;

the charge of said peptide at neutral pH is +1;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted

with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano;

(b) when n = 2 or 3, then

at least one of the amino acids is a cationic amino acid;

the net charge of said peptide at neutral pH is at least +1;

$R_1$ is $C_1$-$C_9$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_9$ alkenyl; $C_4$-$C_9$ alkynyl; $C_1$-$C_9$ haloalkyl; $C_3$-$C_9$ haloalkenyl; $C_3$-$C_9$ haloalkynyl; $C_2$-$C_9$ alkoxyalkyl; $C_2$-$C_9$ alkylthioalkyl; $C_2$-$C_9$ alkylsulfinylalkyl; $C_2$-$C_9$ alkylsulfonylalkyl; $C_5$-$C_9$ cycloalkylalkyl; $C_4$-$C_9$ alkenyloxyalkyl; $C_4$-$C_9$ alkynyloxyalkyl; $C_4$-$C_9$ (cycloalkyl) oxyalkyl; $C_4$-$C_9$ alkenylthioalkyl; $C_4$-$C_9$ alkynylthioalkyl; $C_6$-$C_9$ (cycloalkyl) thioalkyl; $C_2$-$C_9$ haloalkoxyalkyl; $C_4$-$C_9$ haloalkenyloxyalkyl; $C_4$-$C_9$ haloalkynyloxyalkyl; $C_4$-$C_9$ alkoxylalkenyl; $C_4$-$C_9$ alkoxyalkynyl; $C_4$-$C_9$ alkylthioalkenyl; $C_4$-$C_9$ alkylthioalkynyl; $C_4$-$C_9$ trialkylsilylalkyl; $C_1$-$C_9$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_9$ alkoxy; $C_1$-$C_9$ haloalkoxy; $C_1$-$C_9$ alkylthio; $C_1$-$C_9$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted

with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano;

(c) n = 4 or 5, then

at least two of the amino acids are cationic amino acids;

the net charge of the peptide at neutral pH is at least +2;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted

with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano.

2. The antimicrobial peptide of claim 1 wherein said peptide comprises 2 amino acids, and wherein the N-terminal amino acid is a cationic amino acid and the C-terminal amino acid is any amino acid except glutamate or aspartate.

3. The antimicrobial peptide of claim 1 wherein said peptide is selected from the group consisting of Arg-Trp; Lys-Trp; and Orn-Trp.

4. The antimicrobial peptide of claim 1 wherein said peptide is selected from the group consisting of Arg-Phe-Arg; Lys-Phe-Arg; Lys-Phe-Lys; Arg-Phe-Lys; Orn-Phe-Arg; Orn-Phe-Orn; Arg-Phe-Orn; Arg-Trp-Phe; Lys-Trp-Phe; Orn-Trp-Phe; Arg-Trp-Cys; Lys-Trp-Cys; Orn-Trp-Cys; Arg-Phe-Trp; Lys-Phe-Trp; Orn-Phe-Trp; Arg-Arg-Trp; Lys-Lys-Trp; Lys-Arg-Trp; Arg-Lys-Trp; Orn-Orn-Trp; Orn-Arg-Trp; Arg-Orn-Trp; Arg-Trp-Arg; Lys-Trp-Arg; Arg-Trp-Lys; Lys-Trp-Lys; Orn-Trp-Arg; Arg-Trp-Orn; and Orn-Trp-Orn.

5. The antimicrobial of peptide claim 1 wherein said peptide is selected from the group

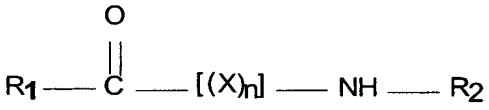
consisting of SEQ ID NO:1; SEQ ID NO:2; SEQ ID NO:3; SEQ ID NO:4; SEQ ID NO:5; SEQ ID NO:6; SEQ ID NO:7; SEQ ID NO:8; SEQ ID NO:9; SEQ ID NO:10; SEQ ID NO:11; SEQ ID NO:12; SEQ ID NO:13; SEQ ID NO:14; SEQ ID NO:15; SEQ ID NO:16; SEQ ID NO:17; SEQ ID NO:18; SEQ ID NO:19; SEQ ID NO:20; SEQ ID NO:21; SEQ ID NO:22; and SEQ ID NO:23.

6. The antimicrobial peptide of claim 1 wherein said peptide is incorporated into a polymer.

7. The antimicrobial peptide of claim 6 wherein said polymer is selected from the group consisting of a polysaccharide, a glycol polymer, a polyester, a polyurethane, a polyacrylate, a polyacrylonitrile, a polyamide, a polyolefin, a polystyrene, a vinyl polymer, a polypropylene, silk, a biopolymer, and mixtures thereof.

8. An antimicrobial peptide wherein said peptide is represented by Formula II:

Formula II



wherein:

X is any natural or non-natural, modified or unmodified amino acid except glutamate or aspartate;

n = 1 to 10;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$

alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_2$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano.

9. The antimicrobial peptide of claim 8 wherein:

(a) when n = 1, 2 or 3, then

at least one amino acid is a cationic amino acid, and

the net charge of said peptide at neutral pH is at least +1;

(b) when n = 4, then

at least two of the amino acids are cationic amino acids, and

the net charge of said peptide at neutral pH is at least +2;

(c) when n = 5, 6 or 7, then

at least three of the amino acids are cationic amino acids, and

the net charge of the peptide at neutral pH is at least +3; and

(d) when n = 8, 9, or 10, then

at least four of the amino acids are cationic amino acids, and

the net charge of the peptide at neutral pH is at least +4.

10. The antimicrobial peptide of claim 8 wherein said peptide is selected from the group consisting of arginine, lysine and ornithine.

11. The antimicrobial peptide of claim 8 wherein said peptide comprises 2 amino acids wherein at least one of the amino acids is a cationic amino acid, wherein the net charge of said peptide is at least +1.

12. The antimicrobial peptide of claim 11 wherein said peptide is selected from the group consisting of Arg-Arg; Arg-Phe; Arg-Tyr; Arg-Ala; Arg-Ile; Arg-Leu; Arg-Pro; Arg-Val; Arg-Cys; Arg-Met; Arg-Ser; Arg-Thr; Arg-Asn; Arg-Gln; Arg-Nal; Arg-His; Arg-Gly; Phe-Arg; Tyr-Arg; Ala-Arg; Ile-Arg; Leu-Arg; Pro-Arg; Val-Arg; Cys-Arg; Met-

Arg; Ser-Arg; Thr-Arg; Asn-Arg; Gln-Arg; Nal-Arg; His-Arg; and Gly-Arg.

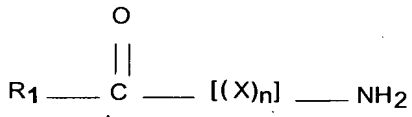
13. The antimicrobial peptide of claim 8 wherein said peptide is selected from the group consisting of Arg-Arg-Arg; Arg-Phe-Arg; Arg-Tyr-Arg; Arg-Ala-Arg; Arg-Ile-Arg; Arg-Leu-Arg; Arg-Pro-Arg; Arg-Val-Arg; Arg-Cys-Arg; Arg-Met-Arg; Arg-Ser-Arg; Arg-Thr-Arg; Arg-Asn-Arg; Arg-Gln-Arg; Arg-Nal-Arg; Arg-Orn-Arg; Arg-His-Arg; Arg-Lys-Arg; Arg-Gly-Arg; Arg-Arg-Nal; Arg-Arg-Phe; Arg-Arg-Tyr; Arg-Arg-Ala; Arg-Arg-Ile; Arg-Arg-Leu; Arg-Arg-Pro; Arg-Arg-Val; Arg-Arg-Cys; Arg-Arg-Met; Arg-Arg-Ser; Arg-Arg-Thr; Arg-Arg-Asn; Arg-Arg-Gln; Arg-Arg-Lys; Arg-Arg-His; Arg-Arg-Orn; and Arg-Arg-Gly.

14. The antimicrobial peptide peptide of claim 8 wherein said peptide is incorporated into a polymer.

15. The antimicrobial peptide of claim 14 wherein said polymer is selected from the group consisting of a polysaccharide, a glycol polymer, a polyester, a polyurethane, a polyacrylate, a polyacrylonitrile, a polyamide, a polyolefin, a polystyrene, a vinyl polymer, a polypropylene, silk, a biopolymer, and mixtures thereof.

16. An antimicrobial composition comprising at least one antimicrobial peptide and at least one carrier wherein said antimicrobial peptide is represented by Formula I:

Formula I



wherein:

X is any natural or non-natural, modified or unmodified amino acid except glutamate or aspartate;

n = 1 to 5;

wherein:

(a) when n = 1, then

said peptide comprises a cationic amino acid;

the charge of said peptide at neutral pH is at least 1;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano;

(b) when n = 2 or 3, then

at least one of the amino acids is a cationic amino acid;

the net charge of said peptide at neutral pH is at least +1;

$R_1$ is $C_1$-$C_9$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_9$ alkenyl; $C_4$-$C_9$ alkynyl; $C_1$-$C_9$ haloalkyl; $C_3$-$C_9$ haloalkenyl; $C_3$-$C_9$ haloalkynyl; $C_2$-$C_9$ alkoxyalkyl; $C_2$-$C_9$ alkylthioalkyl; $C_2$-$C_9$ alkylsulfinylalkyl; $C_2$-$C_9$ alkylsulfonylalkyl; $C_5$-$C_9$ cycloalkylalkyl; $C_4$-$C_9$ alkenyloxyalkyl; $C_4$-$C_9$ alkynyloxyalkyl; $C_4$-$C_9$ (cycloalkyl) oxyalkyl; $C_4$-$C_9$ alkenylthioalkyl; $C_4$-$C_9$ alkynylthioalkyl; $C_6$-$C_9$ (cycloalkyl) thioalkyl; $C_2$-$C_9$ haloalkoxyalkyl; $C_4$-$C_9$ haloalkenyloxyalkyl; $C_4$-$C_9$ haloalkynyloxyalkyl; $C_4$-$C_9$ alkoxylalkenyl; $C_4$-$C_9$ alkoxyalkynyl; $C_4$-$C_9$ alkylthioalkenyl; $C_4$-$C_9$ alkylthioalkynyl; $C_4$-$C_9$ trialkylsilylalkyl; $C_1$-$C_9$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_9$ alkoxy; $C_1$-$C_9$ haloalkoxy; $C_1$-$C_9$ alkylthio; $C_1$-$C_9$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano;

(c) when n = 4 or 5, then

at least two of the amino acids are cationic amino acids;

the net charge of the peptide at neutral pH is at least +2;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano.

17. The antimicrobial composition of ~~claim~~ 16 wherein said peptide comprises 2 amino acids, and wherein the N-terminal amino acid is a cationic amino acid.

18. The antimicrobial composition of claim ~~17~~ wherein said peptide is selected from the group consisting of Arg-Trp; Lys-Trp; and Orn-Trp.

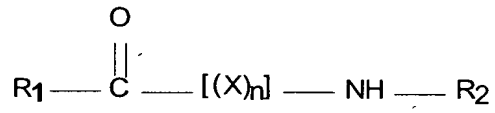
19. The antimicrobial composition of ~~claim~~ 16 wherein said peptide is selected from the group consisting of Arg-Phe-Arg; Lys-Phe-Arg; Lys-Phe-Lys; Arg-Phe-Lys; Orn-Phe-Arg; Orn-Phe-Orn; Arg-Phe-Orn; Arg-Trp-Phe; Lys-Trp-Phe; Orn-Trp-Phe; Arg-Trp-Cys; Lys-Trp-Cys; Orn-Trp-Cys; Arg-Phe-Trp; Lys-Phe-Trp; Orn-Phe-Trp; Arg-Arg-Trp; Lys-Lys-Trp; Lys-Arg-Trp; Arg-Lys-Trp; Orn-Orn-Trp; Orn-Arg-Trp; Arg-Orn-Trp; Arg-Trp-Arg; Lys-Trp-Arg; Arg-Trp-Lys; Lys-Trp-Lys; Orn-Trp-Arg; Arg-Trp-Orn; and Orn-Trp-Orn.

20. The antimicrobial composition of ~~claim~~ 16 wherein said peptide is selected from the group consisting of SEQ ID NO:1; SEQ ID NO:2; SEQ ID NO:3; SEQ ID NO:4; SEQ ID NO:5; SEQ ID NO:6; SEQ ID NO:7; SEQ ID NO:8; SEQ ID NO:9; SEQ ID NO:10; SEQ ID NO:11; SEQ ID NO:12; SEQ ID NO:13; SEQ ID NO:14; SEQ ID NO:15; SEQ ID NO:16; SEQ ID NO:17; SEQ ID NO:18; SEQ ID NO:19; SEQ ID NO:20; SEQ ID NO:21; SEQ ID NO:22; and SEQ ID NO:23.

21. An antimicrobial composition comprising at least one antimicrobial peptide and at least one carrier wherein said antimicrobial peptide is represented by Formula II:

Formula II

wherein:



X is any natural or non-natural, modified or unmodified amino acid except

glutamate or aspartate;

n = 1 to 10;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_2$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted

with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano.

22. The antimicrobial composition of claim 21 wherein wherein:

(a) when n = 1, 2 or 3, then at least one amino acid is a cationic amino acid, and the net charge of said peptide at neutral pH is at least +1;

(b) when n = 4, then
at least two of the amino acids are cationic amino acids, and
the net charge of said peptide at neutral pH is at least +2;

(c) when n = 5, 6, or 7, then
at least three of the amino acids are cationic amino acids, and
the net charge of the peptide at neutral pH is at least +3; and

(d) when n = 8, 9, or 10, then
at least four of the amino acids are cationic amino acids, and
the net charge of the peptide at neutral pH is at least +4.

23. The antimicrobial composition of claim 21 wherein said peptide is selected from the group consisting of arginine, lysine and ornithine.

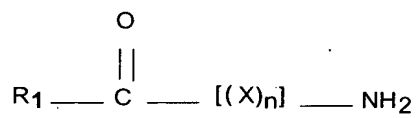
24. The antimicrobial composition of claim 21 wherein said peptide comprises 2 amino acids wherein at least one of the amino acids is a cationic amino acid and wherein the net charge of said peptide is at least +1.

25. The antimicrobial composition of claim 24 wherein said peptide is selected from the group consisting of Arg-Arg; Arg-Phe; Arg-Tyr; Arg-Ala; Arg-Ile; Arg-Leu; Arg-Pro; Arg-Val; Arg-Cys; Arg-Met; Arg-Ser; Arg-Thr; Arg-Asn; Arg-Gln; Arg-Nal; Arg-His; Arg-Gly; Phe-Arg; Tyr-Arg; Ala-Arg; Ile-Arg; Leu-Arg; Pro-Arg; Val-Arg; Cys-Arg; Met-Arg; Ser-Arg; Thr-Arg; Asn-Arg; Gln-Arg; Nal-Arg; His-Arg; and Gly-Arg.

26. The antimicrobial composition of claim 21 wherein said peptide is selected from the group consisting of Arg-Arg-Arg; Arg-Phe-Arg; Arg-Tyr-Arg; Arg-Ala-Arg; Arg-Ile-Arg; Arg-Leu-Arg; Arg-Pro-Arg; Arg-Val-Arg; Arg-Cys-Arg; Arg-Met-Arg; Arg-Ser-Arg; Arg-Thr-Arg; Arg-Asn-Arg; Arg-Gln-Arg; Arg-Nal-Arg; Arg-Orn-Arg; Arg-His-Arg; Arg-Lys-Arg; Arg-Gly-Arg; Arg-Arg-Nal; Arg-Arg-Phe; Arg-Arg-Tyr; Arg-Arg-Ala; Arg-Arg-Ile; Arg-Arg-Leu; Arg-Arg-Pro; Arg-Arg-Val; Arg-Arg-Cys; Arg-Arg-Met; Arg-Arg-Ser; Arg-Arg-Thr; Arg-Arg-Asn; Arg-Arg-Gln; Arg-Arg-Lys; Arg-Arg-His; Arg-Arg-Orn; and Arg-Arg-Gly.

27. A method of preventing, inhibiting, or terminating the growth of at least one microbe comprising administering an antimicrobial amount of an antimicrobial comprising at least one antimicrobial peptide wherein said antimicrobial peptide is represented by Formula I:

Formula I



wherein:

X is any natural or non-natural, modified or unmodified amino acid except

glutamate or aspartate;

n = 1 to 5;

wherein:

(a) when n = 1, then

said peptide comprises a cationic amino acid;

the charge of said peptide at neutral pH is at least 1;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano;

(b) when n = 2 or 3, then

at least one of the amino acids is a cationic amino acid;

the net charge of said peptide at neutral pH is at least +1;

$R_1$ is $C_1$-$C_9$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_9$ alkenyl; $C_4$-$C_9$ alkynyl; $C_1$-$C_9$ haloalkyl; $C_3$-$C_9$ haloalkenyl; $C_3$-$C_9$ haloalkynyl; $C_2$-$C_9$ alkoxyalkyl; $C_2$-$C_9$ alkylthioalkyl; $C_2$-$C_9$ alkylsulfinylalkyl; $C_2$-$C_9$ alkylsulfonylalkyl; $C_5$-$C_9$ cycloalkylalkyl; $C_4$-$C_9$ alkenyloxyalkyl; $C_4$-$C_9$ alkynyloxyalkyl; $C_4$-$C_9$ (cycloalkyl) oxyalkyl; $C_4$-$C_9$ alkenylthioalkyl; $C_4$-$C_9$ alkynylthioalkyl; $C_6$-$C_9$ (cycloalkyl) thioalkyl; $C_2$-$C_9$ haloalkoxyalkyl; $C_4$-$C_9$ haloalkenyloxyalkyl; $C_4$-$C_9$ haloalkynyloxyalkyl; $C_4$-$C_9$ alkoxylalkenyl; $C_4$-$C_9$ alkoxyalkynyl; $C_4$-$C_9$ alkylthioalkenyl; $C_4$-$C_9$ alkylthioalkynyl; $C_4$-$C_9$ trialkylsilylalkyl; $C_1$-$C_9$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_9$ alkoxy; $C_1$-$C_9$ haloalkoxy; $C_1$-$C_9$ alkylthio; $C_1$-$C_9$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano;

(c) when n = 4 or 5, then

at least two of the amino acids are cationic amino acids;

the net charge of the peptide at neutral pH is at least +2;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

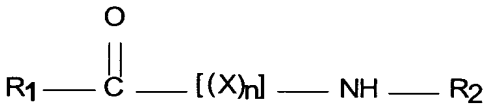
$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano.

28. A method of preventing, inhibiting, or terminating the growth of at least one microbe comprising administering an antimicrobial amount of an antimicrobial comprising at least one antimicrobial peptide wherein said antimicrobial peptide is represented by Formula II:

Formula II 

wherein:

X is any natural or non-natural, modified or unmodified amino acid except glutamate or aspartate;

n = 1 to 10;

$R_1$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_2$ is $C_1$-$C_{20}$ alkyl; $C_3$-$C_6$ cycloalkyl; $C_4$-$C_{20}$ alkenyl; $C_4$-$C_{20}$ alkynyl; $C_1$-$C_{20}$ haloalkyl; $C_3$-$C_{20}$ haloalkenyl; $C_3$-$C_{20}$ haloalkynyl; $C_2$-$C_{20}$ alkoxyalkyl; $C_2$-$C_{20}$ alkylthioalkyl; $C_2$-$C_{20}$ alkylsulfinylalkyl; $C_2$-$C_{20}$ alkylsulfonylalkyl; $C_5$-$C_{20}$ cycloalkylalkyl; $C_4$-$C_{20}$ alkenyloxyalkyl; $C_4$-$C_{20}$ alkynyloxyalkyl; $C_4$-$C_{20}$ (cycloalkyl) oxyalkyl; $C_4$-$C_{20}$ alkenylthioalkyl; $C_4$-$C_{20}$ alkynylthioalkyl; $C_6$-$C_{20}$ (cycloalkyl) thioalkyl; $C_2$-$C_{20}$ haloalkoxyalkyl; $C_4$-$C_{20}$ haloalkenyloxyalkyl; $C_4$-$C_{20}$ haloalkynyloxyalkyl; $C_4$-$C_{20}$ alkoxylalkenyl; $C_4$-$C_{20}$ alkoxyalkynyl; $C_4$-$C_{20}$ alkylthioalkenyl; $C_4$-$C_{20}$ alkylthioalkynyl; $C_4$-$C_{20}$ trialkylsilylalkyl; $C_1$-$C_{20}$ alkyl substituted with $NR_3R_4$, nitro, cyano, or phenyl optionally substituted with $R_5$, $R_6$, and $R_7$; $C_1$-$C_{20}$ alkoxy; $C_1$-$C_{20}$ haloalkoxy; $C_1$-$C_{20}$ alkylthio; $C_1$-$C_{20}$ haloalkylthio; $NR_3R_4$; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with $R_5$, $R_6$ or $R_7$;

$R_3$ is independently hydrogen; $C_1$-$C_4$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_4$ is independently hydrogen; $C_1$-$C_8$ alkyl; or phenyl optionally substituted with at least one $R_8$;

$R_5$ is independently $C_1$-$C_6$ alkyl; $C_1$-$C_6$ alkoxy; $C_1$-$C_6$ haloalkyl; halogen; $C_2$-$C_8$ alkynyl; $C_1$-$C_6$ thioalkyl; phenyl or phenoxy each optionally substituted with at least one $R_8$; cyano; nitro; $C_1$-$C_6$ haloalkoxy; $C_1$-$C_6$ haloalkythio; $C_2$-$C_6$ alkenyl; $C_2$-$C_6$ haloalkenyl; acetyl; $CO_2CH_3$; or $N(C_1$-$C_2$ alkyl$)_2$;

$R_6$ is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

$R_7$ is independently halogen; and

$R_8$ is independently halogen; $C_1$-$C_4$ alkyl; $C_1$-$C_4$ alkoxy; $C_1$-$C_4$ haloalkyl; nitro; or cyano.

29. The method of claim 28 wherein wherein:

(a) when n = 1, 2 or 3, then

at least one amino acid is a cationic amino acid, and

the net charge of said peptide at neutral pH is at least +1;

(b) when n = 4, then

at least two of the amino acids are cationic amino acids, and

the net charge of said peptide at neutral pH is at least +2;

(c) when n = 5, 6, or 7, then

at least three of the amino acids are cationic amino acids, and

the net charge of the peptide at neutral pH is at least +3; and

(d) when n = 8, 9, or 10, then

at least four of the amino acids are cationic amino acids, and

the net charge of the peptide at neutral pH is at least +4.

30. A substrate coated with the antimicrobial of claim 16.

31. A substrate coated with the antimicrobial of claim 21.